

AIR WAR COLLEGE

AIR UNIVERSITY

ASSESSMENT OF USAF'S HIRING POTENTIAL OF CIVILIAN
SCIENTISTS AND ENGINEERS OF THE MILLENNIAL
GENERATION

by

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Biography

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Mr. Broaddus holds a Master of Science degree from the Air Force Institute of Technology in Electrical Engineering. He joined the United States Air Force in 1996 and held several management and technical positions in a variety of specialties. These include Lead Power Systems Engineer for the ICBM SPO/Depot, Program Manager of Combat ID and Navigation Systems at AFRL Sensors Directorate, Director of Operations at the National RCS Test Facility and Chief of the National Measurements Branch in Washington DC responsible for coordinating testing and requirements across all government organizations.

Abstract

The Millennial Generation (individuals born 1981-2000) is entering the workforce in large numbers and brings with them different views across a wide variety of areas. To be competitive in the hiring and retaining of talented, young individuals, particularly in the competitive fields of science and engineering, it is imperative to understand these differences. The United States Air Force (USAF) has acknowledged the critical nature of this issue and created initiatives to reduce hiring timelines and increase opportunities for continued development. However, several areas need addressed to ensure the USAF is able to compete with the private sector. Reviewing the overall characteristics of Millennials and what they view as important in their work and social lives revealed policy approaches that could ensure the USAF maximizes its ability to recruit and retain Millennials in the competitive fields of science and engineering. Additionally, these approaches could reduce as well as reducing conflict in the workplace among the different generations. These policy approaches are: 1. Allow flexible hours of work and of alternate duty locations, 2. Change reward and feedback expectations, 3. Delineate clear path forward for leadership (rotational assignments), 4. Clear the way for more use of technology, and 5. Increase awareness of reputation of work. Incorporating these changes and continuing with the initiatives already underway to reduce hiring timelines and increasing opportunities for professional development will improve the ability of the USAF to recruit and retain scientist and engineers of the Millennial generation.

Introduction

The Millennial generation (those born between 1981 and 2000) are now beginning to enter the workforce in large numbers and questions about their impact seem to be common in newspapers, journals and anywhere business is concerned. To many, the common perceptions of Millennials are of a generation different from previous and one that will have trouble fitting into the existing workforce. Millennials are the first generation to have electronics integrated into every aspect of their lives, able to communicate with others instantaneously and have a demographic in which no single ethnic group dominates. Combining these unique qualities and the common perception that the personal management style in the United States Air Force (USAF), and the government in general, is heavily bureaucratic and resistant to change seems to indicate an unresolvable obstacle.

This issue is not unique to the USAF. While many believe the new generation are inferior or need to change their ways to integrate with others, organizations in the private sector understand the critical need to undertake steps to better increase their chances of recruiting and retaining the brightest scientists and engineers of this generation. To stay competitive and attract technical talent, organizations must understand the characteristics of this generation and, if needed, adjust aspects of their structure or concepts of operations to both help in the recruitment of this new generation as well as helping to manage multiple generations simultaneously in the workplace to avoid unnecessary turnover and conflict.

The aging demographics in the USAF further exacerbate this need and, fortunately, the USAF has already taken steps to help in the recruitment of Millennials. This research paper addresses the question of whether the United States Air Force's current organization structure

and processes are competitive in hiring and retaining quality scientist and engineers of the Millennial Generation.



Thesis

This research paper addresses the question of whether the United States Air Force's current organization structure, policies and processes are competitive in hiring and retaining quality scientist and engineers of the Millennial Generation.



Millennials

Definition of Millennials and Why They Matter

When discussing issues surrounding Millennials, the first questions to ask are ‘what is a millennial’ and ‘how they are different from previous generations’? Although there is not a universally accepted timeframe for the birth years that define the generations and used in this research paper follow the descriptions listed in Table 1.¹

Name	Birth Year
Traditionalist	1925-1945
Baby Boomers	1946-1964
Generation X	1965-1980
Millennials (or Gen Y)	1981-2000

Table 1: Definition of Generations

Traditionalists are relatively few in number in the current workforce while Baby Boomers and their children, Generation X, currently make up the majority of the workforce. However, Millennials represent a tidal wave of in-bound workers and, by the year 2020, Millennials will make up approximately 36% to the overall adult population² in the United States and 50% of the total work force worldwide.³

Why is this surge of the next generation into the workforce important? In particular, why does this matter to supervisors or senior leaders in the United States Air Force (USAF)? The answer is twofold. First and as with all generations, the Millennial generation is different from their predecessors in how they view themselves, their work-life relationship and what they are looking for in an employer. Second, without acknowledging and understanding these differences, organizations cannot maximize their competitiveness in recruiting and retaining young, talented workers in general and, more importantly, in the engineering or scientific fields which have relatively fewer candidates.

The federal government, in particular, cannot afford to delay reviewing these differences and incorporating changes due to the aging of the civilian workforce. The Office of Personnel Management estimates that 60% of the total federal workforce will reach retirement age by 2017.⁴ The need to understand the issues around this new generation is evident to for the future and, since Baby Boomers and Generation X are or will become the supervisors Millennials, misunderstanding the unique characteristics of the Millennial generation could be costly to the organization and lead needless internal conflict and turnover of the workforce. Turnover costs to an organization typically range from 50 to 150 percent of the employee's annual salary.⁵

To make the issue even more critical for federal agencies, the data shows the overall federal employment of workers in the Millennial generation is not only lower than the national average has been dropping over the last few several years, which could indicate a mismatch between the organization and Millennials' unique characteristics. According to the data from the Office of Personnel Management's website, Millennials under the age of 30 only represent approximately 8.3% of the total government workforce and those under 25 represent a paltry 2.1% of the total force.⁶ The number jumps when including individuals less than 34 years of age to 19.1%.⁷ The science and technology fields fair better overall but still are lagging behind the nation. For comparison, the overall workforce in the United States under 30 is 23.5%.⁸

To correct this disparity, a closer look at these issues is warranted. The first step is to review the demographics and characteristics of Millennials and what makes them different from previous generations. Next, it is important to review those qualities Millennials view important in both their life and a potential employer. Finally, this paper will examine how the USAF is addressing those issues and offer approaches as to how the USAF could better meet Millennial's objectives in finding an employer.

Millennial Demographics and Characteristics

Figure 1 depicts how the Millennial generation differs in race/ethnicity to previous generations. While Generation X and Millennials have a similar ethnic makeup, significant differences exist between Baby Boomers. They are not only different from both the Baby Boomer and Traditionalist generations in ethnic makeup, but they are also the most numerous since the Baby Boomers.⁹

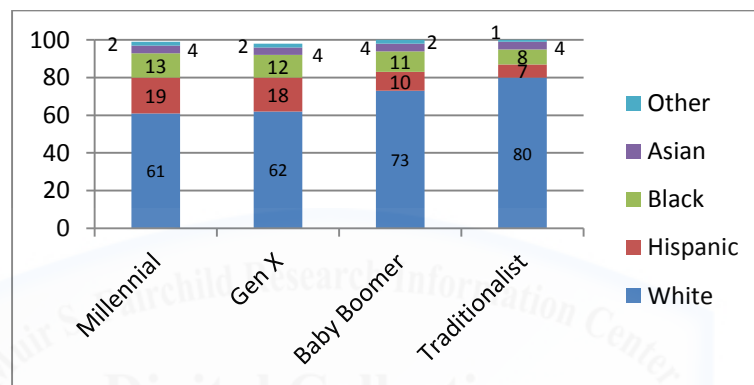


Figure 1: Race / Ethnicity Comparison

Of particular note, the rapid change of the Hispanic population does not necessarily indicate that a larger portion of the generation is foreign born or naturalized. In fact, despite the influx of immigrants into the United States, Millennials are not substantially more likely to be born outside the country than previous generations and are less likely than Generation X to be foreign born.¹⁰ Oddly, a distinguishing factor is that Millennials are more likely to be born with at least one immigrant parent (11%) than Generation X (7%) or Baby Boomers (4%) generation.¹¹ This trait makes them more similar to the older, traditionalist generation (11%) which came to the United States during the immigration surge that began in the late 1800s.¹²

Every generation view themselves as different from previous generations and Millennials are no exception. When surveyed, the generations listed the traits that make them unique as shown in Table 2.¹³

Millennial	Generation X	Baby Boomer	Traditionalist
1. Technology (24%)	Technology (12%)	Work ethic (17%)	WWII (14%)
2. Music/ Culture (11%)	Work ethic (11%)	Respectful (14%)	Smarter (13%)
3. Liberal/Tolerant (7%)	Conservative (7%)	Values/Morals (8%)	Honest (12%)
4. Smarter (6%)	Smarter (6%)	“Baby Boomers” (6%)	Work ethic (10%)
5. Clothes (5%)	Respectful (5%)	Smarter (5%)	Values/morals (10%)

Table 2: Unique Characteristics of Generations

Of note, Millennials view that their use of technology differentiates them from previous generations. Millennials are not just knowledgeable and comfortable with electronic devices but are unique in that they incorporate technology into many different aspects of their lives,¹⁴ which has earned them the nickname of the ‘digital generation’. Most Millennials are constantly available on their electronic device and social networks and the internet has become their main source of information.¹⁵ An outcome of this reliance on technology to solve issues is that most Millennials do not see their supervisors as a knowledge expert but instead as a coach, mentor or facilitator.¹⁶ This reliance on the use of technology is an issue when trying to incorporate Millennials into the government workforce due to the generally slow pace at which governments acquire and use new technologies.¹⁷ In addition, Millennials are the only generation that did not place “work ethic” in their top five reasons that make them unique. Although other generations may use this stated lack of focus on work ethic to degrade Millennials, this could be a reflection of the importance placed on finding a priority on a work-life balance, which will be discussed later.

Another unique aspect of Millennials is that they are on their way to becoming the most educated generation and, as shown in Figure 2, the qualifications of women of this generation

have surpassed men.¹⁸ While this difference is significant between previous generations, it may be more important in considering changes to the work-environment, recruiting and retention issues related to Millennials.

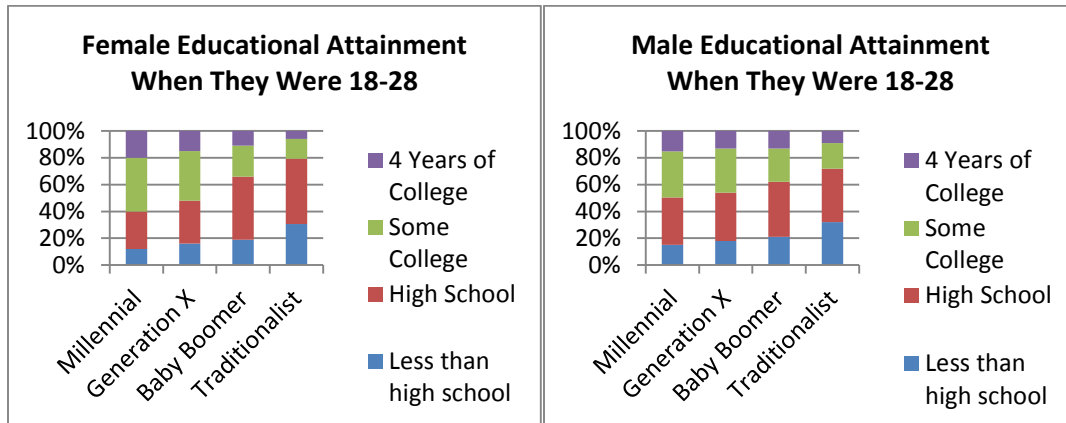


Figure 2: Education Comparison

Millennials also differ from previous generations in their view of how long they expect to stay with a particular employer. As shown in Figure 3, Millennials hold a view that employment with one particular employer throughout their careers is unlikely and change is expected¹⁹.

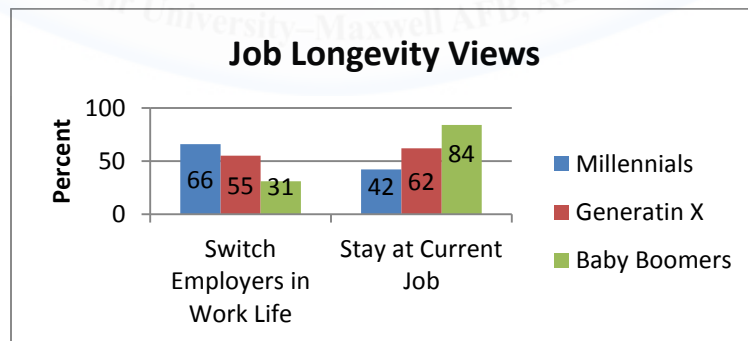


Figure 3: Job Longevity Views

While switching of employers isn't unexpected, the number of employers a Millennial expects to work for in their career is unexpected. A majority of Millennials, 54%, believe they will have between two and five employers in their work-life, while almost 10% thought they would have over ten employers.²⁰ A more telling indicator of the acceptance of change for Millennials is

that only 21% planned to stay in their current field of study altogether.²¹ While the data does not make it clear on whether Millennials simply desire to change jobs or believe that changing jobs is an inevitable outcome of the economy, this can be an indication of the importance of both career opportunities and continued professional development by Millennials.

Millennials also place a high value on the connection between organizations and social responsibilities. Almost 90% of Millennials said they bought items from companies that supported specific social programs while a similar number reported they would switch brands from a company to one that supported social issues.²² Moreover, the Millennials have moved away from raw consumerism to more of a focus on what is important in life.²³ This relationship is, again, an indication of the importance Millennials place on finding a work-life balance.

While Millennials place a high value on social awareness, they have a contradictory view in their trust toward others. When asked if most people can be trusted, only 19% of Millennials agreed compared to 31% for Gen Xers, and 40% for Boomers.²⁴ Despite the lack of trust of individuals, the pattern of Millennials having a positive view of the world continues with their overall view of the future of the country and the gap between previous generations, which generally has a more pessimistic view, continues to widen. When asked if the country is heading in the right direction, 41% said yes while only 26% of individuals over the age of 30 viewed the country as heading in the right direction.²⁵

What do Millennials Want in Their Work and Social Lives

The previous section outlined some general demographic data and differences between Millennials and previous generations. Using those results allows an understanding of what Millennials value in their work and social lives and what they look for when choosing an employer. While having some discrepancies, multiple studies indicate consistent patterns of

what Millennials value are evident. This section briefly reviews those results that both gives an insight to the importance of these different values and will form a basis for changes needed in order to make the USAF a more attractive employer.

The following three tables display results from surveys that indicate Millennials are both practical and idealistic when looking for an employer and trying to find a work-life balance.

From a survey of new graduates, the information in the table below depicts the top five priorities Millennials consider when deciding if an employer is attractive upon graduation.²⁶

1	Opportunities for career Progression
2	Competitive wages / other financial incentives
3	Excellent training / development packages
4	Good benefits packages
5	Flexible working arrangements

Table 3: Employer Characteristics Desired by Millennials

Despite the very practical outlook in which Millennials place a high value on practical things such as salary and benefits, Millennials also hold onto their ideals when actually accepting a position. The following table lists the factors that most influenced their decision to accept their current position.²⁷

1	Opportunity for personal development
2	Reputation of the organization
3	The role itself
4	Starting salary
5	Work locations

Table 4: Factors Influencing Millennials to Accept Current Position

In conjunction with the previous survey summaries, researchers also asked Millennials what compromises they had to make in order to get their foot in the door. While these compromises may indicate the effects of the economy and jobs that were available upon graduation, they are useful in solidifying the priorities Millennials are looking for in an ideal employer. These compromises are also important to understand in the area of retention and summarized in the table below.²⁸

1	Taking a lower salary
2	Working away from preferred location
3	Fewer additional benefits than hoped for
4	Working outside my preferred sector
5	More limited opportunities for advancement than desired

Table 5: Compromises in Accepting Current Position

Another very unique characteristic but, possibly, consistent with their strong desire for personal development and near continuous connectivity, Millennials consistently look for and need consistent performance feedback. From a study of 13,000 Millennials, an extremely important and unique aspect of retraining younger workers is a requirement to provide a supportive work community.²⁹ At Price Waterhouse, for example, they abolished annual performance reviews, provided more instant feedback and refocused their efforts to match their often-idealistic desire to make a difference.³⁰ Another firm, Clifton Gunderson, “cut its turnover in half by instituting a high-touch-guidance policy. Managers there now schedule at least one formal in-person meeting time per week with employees to offer guidance, and touch base informally with them daily.”³¹ As an indication that many employers have not recognized this fact, over 60% of Millennials say they do not receive enough recognition or praise from their employers.³² In fact, the area of recognition may be the single greatest factor to determine the workplace satisfaction for Millennials.³³

Another important characteristic revealed by studies revealed that, to help achieve a work-life balance that is so critical to Millennials, flexibility at work is important. In a study of generations in the workforce, 50% of Millennials and 38% of Generation Xers stated flexible hours are a critical factor in accepting a job offer.³⁴ These results for Millennials mirror those in the previous table outlining the top five factors Millennials view as important for an ideal employer. Allowing individuals to set their own pace will help find a balance between the social life and their work that Millennials need.³⁵ While Millennials place a high importance on finding

a work-life balance, those working in the federal government feel that management does not share this view. For federal workers, “the scores for work-life balance questions have been trending downward since 2008 and, possibly more important, only 55% of employees agreed that senior leaders in government demonstrate support for work-life programs.”³⁶

Scientist and Engineer Demographics in the USAF and Personnel Practices

The overall satisfaction with those in the government workforce is encouraging. The results from the 2014 Federal Employee Viewpoint survey would indicate that the USAF has addressed many of the issues regarding Millennials. For example, 86% of Millennials in the federal government believe the work they do is important while 80% say they can see how their work relates to their agency’s goals³⁷. Additionally, 61% are satisfied with their jobs and a similar number would recommend their organization to others as a good place to work.³⁸ This is a good indication that the USAF has been working toward accommodating the Millennials into the workforce. An examination of the information indicates areas that warrant a closer look at the challenges and need to hire Millennials.

Possibly the most critical issue facing the USAF science and engineering career field is the aging of the workforce. As shown in Table 6, only 4% of total workforce is 25 years of age or younger with over 40% at or near the minimum retirement age.³⁹ The disparity between the current scientist and engineer workforce is even more distant from the overall workforce in the United States when considering that females represent only 14% of the total S&E workforce.⁴⁰ These distributions clearly underscore the need to examine the current hiring practices to determine courses of action to help rectify this situation to hire and retain younger scientist and engineers.

Age	Number of Employees	Percentage
60+	1387	9%
50-60	5202	34%
40-50	3090	20%
25-40	4986	33%
<=25	602	4%

Table 6: Age Distribution of S&E Workforce

The previously stated trends and characteristics apply to all Millennials and supply the foundational information needed to understand Millennials. However, as mentioned previously, the USAF has additional issues with both their demographics and hiring practices that demonstrate the urgent need to examine possible reform opportunities. This section will briefly review additional demographic information specific to the Scientist and Engineering workforce in the USAF as well as some issues which further exacerbate the issue of hiring and retraining Millennials.

From the previous section on what Millennials want in an employer, research showed that Millennials' placed a high priority on continued personal/professional development opportunities when choosing to accept a position with an employer. The information in Table 7 depicts the education levels of the approximately 15,000 federal workers in the USAF's science and engineering (S&E) field.⁴¹ This information would seem to indicate that opportunities exist in the USAF to continue professional development. Basic Tuition Assistance covers up to 75% of tuition costs but courses must be taken on an off-duty basis.⁴²

Bachelor of Science/Arts	40%
Master of Science/Arts	43%
Ph.D.	10%
Other	7%

Table 7: Education Levels of Current, Civilian S&E Employees in the USAF

While tuition assistance is usually permitted for additional education related to the occupation of the employee, the USAF acknowledged the desire of the workforce to expand their education in areas to allow them to be more effective leaders. The USAF has recently created

the ability to accomplish this by offering tuition assistance and full time training opportunities through the STEM+M (Science, Technology, Engineering and Mathematics + Management) program.⁴³ This program expands an employee's ability to continue their education by allowing them the option of pursuing management degrees as well as technical degrees.⁴⁴ Additionally, the Science and Engineering career field team has created multiple opportunities for career progression through the civilian development and education program that offers a wide variety of professional developmental education.

According to a recent survey conducted by the Air Force Personnel Center, the primary two reasons for the inability to recruit new employees in the science and engineering career fields were lack of competitive salary and issues associated with the offer timelines and processes.⁴⁵ The USAF is either addressing these issues with recent initiatives or, in the aspect of salary, have the ability to offer a candidate a higher starting salary when filling the position at the target grade/level.

The often-stated disparity of salaries among scientist and engineers in the federal government and the private sector is noteworthy. According to the National Association of Colleges and Employers, the average starting salaries of new graduates in the technical fields remains high as depicted in the Table 8 for three S&E representative categories.⁴⁶

Engineering	\$64,891
Mathematics	\$52,821
Computer Sciences	\$62,194

Table 6: Average Private Sector Salaries for New Graduates

Private sector salaries are comparable to initial government salaries only if supervisors hire new recruits in GS-12s pay-band at a step 5 for example. However, the average salaries for engineers and scientist that are 25 years or younger are predominantly (50%) banded in the pay range for GS-07 through GS-09 pay scales while only approximately 17% are in the GS-11

through GS-12 pay ranges⁴⁷. The information in Table 9 depicts the salaries in these bands at the median step as well as the percent of workers under 25 in those pay bands.⁴⁸ Clearly, a disparity exists in the salaries offered by the USAF companies in the private sector. While the possibility exists to bring new hires in at a competitive salary, the majority of new scientists and engineers have been brought into the civil service at a lower salary. Some of this may be due to developmental program such as Palace Acquire, which offers students positions prior to graduation at a lower, initial salary but helps to pay some or all of the individual's tuition or student loans.

Pay Band	Step	Range	Percent Workers <= 25 Yrs.
GS07 – GS09	5	\$39,282 - \$48,051	50%
GS11 – GS12	5	\$58,138 - \$69,686	17%

Table 7: Salaries of Entry Level S&Es in Federal Service

While it is acknowledged that hiring timelines are an issue as indicated in the survey conducted by the USAF, no direct data is available on how many days pass between a job offer and an employee's first day of work. However, the USAF addressed this potential issue in August of 2015 by allowing the use of tentative job offers and giving the ability to negotiate salary when using either expedited hiring or direct hiring authority.⁴⁹ This authority could alleviate the concern in additional delays in hiring Millennials in the engineering and science career fields.

While these initiatives clearly indicate a desire by the USAF to recruit and retain scientists and engineers of this generation, questions remain on what further should be done. If the USAF is to be competitive, what other barriers needs removed or changes made to allow the USAF to be more competitive and reduce conflict in the workplace to help retain young talent?

Recommendations

Although the USAF is currently addressing many of the issues associated with hiring in an often-cumbersome bureaucracy, the implementation of the following recommendations as policy would alleviate future challenges. In particular, the following recommendations use results of research conducted that determine those remaining areas considered to be of high value to Millennials. An underlying basis of these recommendations is that Millennials place high priority on finding a work-life balance and have unique requirements due to the circumstances in which Millennials have experienced. To become a more attractive employer, the USAF should maintain the initiatives that are already underway to reduce hiring timelines and increase professional development opportunities as well as incorporating five recommendations.

First, in order to allow Millennials to achieve a work-life balance create the options of flextime and alternate duty locations. As mentioned, the desire to find a work-life balance is a foundation in which Millennials which is an enabler for the other priorities listed high by such as continued personal and professional development. Nearly half of the Millennials surveyed viewed the availability of flexible work arrangement as a critical factor when considering accepting a job offer and will allow the opportunity for Millennials to find the balance between their work and social lives.⁵⁰

Second, update the type and frequency of feedback typically given to employees in the USAF. Due to the constant connectivity Millennials have experience; results about both their work and themselves are expected in a very different timeframe from previous generations. A daily or weekly feedback system proved successful in commercial organizations and, as mentioned, may be the single best factor in determining workplace satisfaction.⁵¹ The current semi-annual and annual feedback system in use by the USAF is incompatible with this desire.

Instead, the use of frequent, informal feedback (either verbally or written) is both permissible within the current USAF policies and would better meet the Millennial expectations.

Third, since personal development opportunities rank high in both Millennials' desired characteristics of an employer and reasons why they accepted a first job, create additional possibilities for rotational assignments. The USAF has already created multiple opportunities for furthering academic development but limited opportunities exist for enhancing skills that can be obtained through rotations assignments. Creating a clear set of requirements to enter into rotational assignments satisfies both the Millennials' desire for professional development and could also help offset the internal view Millennials have of moving to multiple employers in their work life.

Fourth, allow for the incorporation of more technology in the workplace. As mentioned, Millennials not only view their use of technology as unique, they incorporate it into nearly all aspects⁵². Millennials have grown accustomed to working with others through electronic media and are often most comfortable and productive when using this format. While difficult to implement in the secure computer architecture inherent in government workspaces, this issue could resolve itself when allowing alternative work locations (e.g. home, satellite offices) that may, by necessity, require team members to use technology to stay connected.

Fifth, since 90% of surveyed Millennials place a high value on companies promoting social programs,⁵³ increasing the overall knowledge of the benefit government organization provide would benefit recruitment. While 86% of Millennials currently working in the government view that their positions contribute to make a difference⁵⁴, increasing this awareness could help remove the view by individuals outside the current workforce of the USAF as a large bureaucratic organization to one that is working toward the greater good. Following these

recommendations along with continuing the initiatives already underway will help the USAF stay competitive in the hiring of Millennials in the Science and Engineering fields.

Conclusion

Millennials are beginning to enter the workforce in large numbers and bring with them different priorities in both their work and social lives. Failure to understand these differences could cause an organization to become less competitive in recruiting and retaining young, talented individuals. In particular, the federal government should be concerned about these differences due to their aging workforce near retirement and, in particular, in the scientific and engineering career fields due to competition with the private sector.

The USAF has already begun to address the main issues of increasing pay, reducing timelines and creating additional opportunities for continued development to address some of the administrative and personal issues that negatively affects attracting Millennials. However, there are additional adjustments needed to make the federal government attractive to new scientist and engineers:

1. Allow flexible hours of work and of alternate duty locations
2. Change reward and feedback expectations
3. Delineate clear path forward for leadership (rotational assignments)
4. Clear the way for more use of technology
5. Increase awareness of reputation of work

The combination of continuing with initiatives already underway and implementing programs to incorporate these areas should make the USAF competitive in hiring talented individuals of the Millennial generation.

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